

Invention and Progress

The Yankee jack-of-all-trades, like Sam Slick, peddler of Connecticut notions, may first have exercised his ingenuity in New England, but his descendants were to follow the restless frontier into the back-of-beyond of America. Clever inventors, anxious to create and to improve, contributed much to American life during the nineteenth century. Imbued with a combination of curiosity and the creative urge, men toiled in primitive workshops and experimented behind closed doors in order that technological advances might be pushed ever forward. In agricultural mechanics the fruits of their labor swelled the reports of a young United States Patent Office. The first patent statute was approved by George Washington on April 10, 1790, and on July 4, 1836, a report was made to the Congress which formed the basis of the patent system as it still functions.

During the following decade Iowa became a State and in 1847 was already showing signs of becoming a great agricultural center. With an estimated population of about 130,000 persons and with a flood of emigrants moving into the

rich prairie country, the State was becoming vitally interested in mechanical techniques of all types which would aid farmers in producing to capacity, in saving labor, and in becoming more efficient generally. It was only natural, then, that Iowans would not only take advantage of mechanical progress, but would also contribute to the brilliant history of nineteenth-century inventions. Although Iowa inventors were not numerous during the forties they were destined to increase until the State compared favorably with other commonwealths by the time of the Civil War in the number of locally patented inventions.

Among the early inventors of agricultural devices and techniques in Iowa was G. W. C. Gillespie of Burlington who, on September 9, 1851, patented a wheeled cultivating plow. Gillespie hung "one or both of the axles of the wheels to the carriages of cultivator, gangs of ploughs, seed drills, etc., to the frame of the carriage, so as to vibrate the axle or axles," and thus "keep them at right angles to the motion of the ploughs when moving in a direct line." Plows were continually being improved. In 1847 Emanuel Albert had invented a device which would connect the mouldboard and the guard plate but would leave the mouldboard free from the sheath or upright and thus render the plow

stronger and much easier to assemble. Albert's invention could be applied to either right- or left-handed plows.

Few of these agricultural devices, of course, ever were produced and placed upon the market for the actual use of Iowa agrarians. Yet they indicated that the Hawkeye farmer was alert to improvement. Even the household loom was not ignored. In the three years following 1849, for example, several significant contributions were made by Iowans to the household loom. Those were the days when many Iowa families wore clothing fabricated by the skilled hands of the frontier housewife. At Salem, John G. Garretson, Obed King, and Ezra King all made improvements upon the loom and at Clay, Isaac H. Garretson patented a device which simplified the movement of the shuttle. It is interesting to note that while these Iowa inventors were modifying the loom, Isaac M. Singer was making improvements upon the sewing machine.

There were fields, of course, in which residents of Iowa did little or no inventing prior to the Civil War. For example, they made few contributions to the improvement of the steam engine and the gas engine; they did not trouble themselves over much with dyeing and color-making, although they used locally-made dyes which could have

been bettered; they made few improvements to grinding mills although Iowa was a land of mills; and they apparently were none too interested in improving the type of shotgun and rifle with which they hunted. And only rarely did an Iowa physician or dentist seek a patent upon a new surgical device or instrument. The Hawkeye inventor was much more apt to toy with a novel idea for a steam boiler, to design a new type of fence, to patent a machine for cutting barrel heads, or to create a lathe for turning a "fancy" handle.

It seemed almost as if every American town had its village inventor in the expansionist days before the Civil War. Iowa was no exception to this rule. Up and down the State and from the Mississippi to the Missouri, were men anxious to improve upon old methods and to create new machinery, processes, and techniques. The thesis that the frontier was a backwash community isolated from the spirit of the times and contented with slavishly following old customs suffers a severe jolt when an examination is made of the innumerable patents obtained by individuals living in newly settled country. The pioneers, being resourceful, were inevitably inventive. A partial roll call of Iowans who used their wits to develop significant improvements reveals not only excep-

tional talent, but also indicates that the State was not entirely provincial and isolated from the march of progress.

Charles A. Robbins, for example, was one of the earliest residents of Iowa City to make application for a patent. On September 7, 1852, the government guaranteed his right to control the use of an air-tight mail bag which he and Harvey Allen had designed in order to protect mail from both dust and water. Mail bags were commonly piled on top of stage coaches where their contents either were soiled with dirt or reduced to sodden masses from heavy rains. Even when mail was carried in the boot of the coach there was no assurance that it could be kept dry. Robbins crimped in the elastic material of the bag, thus effectively sealing its contents. In 1854, Robbins also patented a ditching and excavating plow said to be especially effective in turning prairie sod.

At Burlington, during the fifties, John C. Fletcher, Luther Wentworth, Ephraim Parker, and Denzlow Burhaus were designing radiators for stoves, lathes for turning fancy handles, machines for making clothes pins, and machines for cutting pasteboard. C. A. Mills was the outstanding Dubuque inventor in 1856. He secured patents for a stone sawing-mill and for head rests for chairs. Other Dubuque residents in correspond-

ence with the patent office were John L. Harvey who received a patent on a paper clip on July 1, 1856, and Henry Hanner who developed a new process for making white lead. At Davenport, Harvey T. Hughes and D. Christian Raub were experimenting with brick presses and coal stoves.

Probably the most prominent inventor of Osceola was James Mitchell who in 1857 received patents on a locomotive cow catcher, a railroad car brake, and a digging machine. In 1855, William S. Smith, of Cedar Rapids, devised a current wheel, and in the following year August Hengstenberg, of Muscatine, patented a candel mould machine. At Fairfield, George Craine developed a new method of feeding and sawing shingles, while at Columbus City Robert Wilson was tinkering with a heating apparatus which would also feed water to steam boilers.

The average Iowa resident, however, was not an inventor even though the march of mechanical progress was conditioning his way of life. Most emigrants who came to Iowa were interested primarily in turning the rich prairie sod, in driving a straight furrow, and in harvesting abundant crops. Nevertheless the farmers of the State were much interested in the improvement of agricultural implements. The United States Patent Office, in the days before 1870, showed its interest in agri-

cultural affairs by issuing the annual reports in two parts — the first devoted to mechanical advances and the second to agricultural procedures.

During the fifties, for example, farmers from Lee, Scott, Jefferson, and Marion counties regularly reported the condition of crops as well as farm practices to the Commissioner of Patents. Their comments offer a revealing picture of rural conditions in Iowa. That the Patent Office recognized the importance of farming is attested by a statement of Dr. D. Lee who wrote in 1849 that "Every one that eats bread or wears cloth made of wool, cotton, or flax, has a direct personal interest in the results of tillage and farm economy." It was for this reason that successive Commissioners of Patents devoted abundant attention to the rural scene. Each year they sent circulars to postmasters throughout the nation with the request that these questionnaires be handed to responsible farmers who were to fill them out and return them to the Patent Office.

In 1850, one of these circulars was handed to Edward Johnstone, a farmer living near Fort Madison. Johnstone's reply was a mine of information concerning agricultural practices in southeastern Iowa. Although seven types of wheat were being sowed in the community, the red-chaff bearded was considered best as it was a sure crop

in sod and produced an average of about eighteen bushels per acre. A few farmers were preparing their wheat for sowing by steeping it in strong brine and then rolling it in lime. It was thought that wheat thus prepared was not so liable to be injured by the fly and that this type of preparation acted as a fertilizer. It is interesting to note too that few Lee County farmers rotated their crops although they sometimes endeavored to put in corn after small grain and were beginning to use clover "for the purpose of manure". Yellow corn was favored because it ripened sooner than the white, but yielded only about forty-five bushels to the acre while white corn yielded about fifty-five bushels. Johnstone also noted that Merino sheep were becoming increasingly popular and that the Poland-China hog was replacing the Berkshire. By 1852, the best breed was said to be a mixture of the Poland-China with the Byfield, Irish Grazer, or some other large breed. Durham cattle were also increasing. In 1851, Daniel McCready, another Lee County farmer, reported that much plowing was done by steers. "Steers," he said, "when yoked first, are put on the tongue of a wagon, or the hindermost yoke in a prairie plough; then put on an old yoke before them, and they generally soon give up."

Senator Augustus Caesar Dodge sent a patent

office questionnaire to Laurel Summers, a Scott County farmer, in 1852. Summers reported that Hedge Row wheat was extensively grown in his vicinity and that the most popular type of corn grown in Scott, Clinton, and adjoining counties was the Yellow Dent. A Jefferson County resident indicated that the red-chaff, bearded wheat was the favorite variety and said that the Mediterranean did not stand the Iowa winters. Practically all reports emphasized the fact that Iowa soil was so rich that manure, guano, or any other type of fertilizer was absolutely unnecessary. "Wheat", said a Kaneshville farmer, "is produced through this section of the country without the aid of any kind of manures." Other Iowans took obvious pride in commenting upon the abundance of native pasturage. They pointed out that cattle could fatten all winter on the extensive beds of rushes which grew along all the large streams and then "in the summer our broad prairies produce an abundance of fine rich grass, which fatten stock much quicker than the tame grasses." In Marion County, sheep-growers waxed enthusiastic over natural pasturage which offered fodder to the flocks of Merinos for nothing.

It was only natural, of course, that the Patent Office would also be interested in the development of societies for the promotion of agricultural inter-

ests. In 1857, the Patent Office pointed out the benefit of agricultural associations and economical societies and the following year submitted a detailed report for the several States. At that time Iowa had sixty-six agricultural societies, one horticultural society, and seven agricultural and mechanical associations. The Iowa State Agricultural Society had been organized in June, 1854, and the bulk of the local societies had been formed during the same decade. Among these were the Kossuth County Agricultural Society, Linn County Agricultural and Mechanical Society, and the Dubuque County Agricultural Association. The Farmers' and Mechanics' Benevolent Reform Association was organized in Marshall County on January 30, 1857, and was dedicated to "benevolence and reform in the fullest sense of the duties of life, drawing attention to the necessity of cleanliness of person and the laws of health in general, economy of means and time, and everything that tends to the elevation of the masses, morally and socially."

The Polk County Agricultural, Horticultural and Industrial Association, organized on May 28, 1853, had a membership of 295 five years later and boasted of owning thirty-five and a half acres of ground within the corporate limits of Des Moines. This land cost \$3550 and was "about

half paid for". In Wright County, an agricultural society had a membership of about forty-five, but most of these were said to be farmers of small means and were unable to guide the association with energy. "Something must be done", said a report to the Patent Office, "to inspire them with more confidence in their own skill, and in the importance of a Society of this kind."

As the fabulous fifties merged in the stirring, troublesome decade of the Civil War, the Patent Office continued to operate, to extend a helping hand to Iowa jacks-of-all-trades, inventors, and farmers. The roll of Hawkeye patents continued to swell, but it was the two decades prior to the war which witnessed the beginning and growth not only of Iowa's inventive genius, but also of the aid which a benevolent Patent Office offered the State's early settlers.

PHILIP D. JORDAN